

a magnetic force line generator that generates magnetic force in said plasma generation region;

a first high-frequency power applicator that applies high-frequency electric power to said discharge electrode to generate a first electric field, wherein the electric field and the magnetic force forms a first plasma density that is higher in a periphery of said plasma generation region than in a center of said plasma generation region;

two walls, formed of a substance exhibiting electrical conductivity, and positioned so as to sandwich said plasma generation region between them, in a center axis of said discharge electrode, for defining the scope of said plasma generation region in said centeraxis, wherein a substrate is located between said two walls;

a second high-frequency electric power applicator that applies high-frequency electric power to at least one of said two walls to generate a second field that forms a second plasma density that is higher in said center of said plasma generation region than in said periphery of said plasma generation region; and

a controller that controls a magnitude of high-frequency electric power of said first high-frequency power applicator and a magnitude of high-frequency electric power of said second high-frequency electric power applicator such that said first plasma density and said second plasma density form a uniform plasma density in said plasma generation region.

Please add new claims 22-41 as follows:

--22. A plasma generation apparatus, comprising:

a vacuum vessel having a plasma generation region established in an interior thereof;

a gas inductor that inducts discharge gas into said interior of said vacuum vessel;

an exhaust that exhausts an atmosphere in the interior of said vacuum vessel;

a tube-shaped discharge electrode fashioned so as to enclose said plasma generation region;

a first high-frequency electric power applicator that applies first high-frequency electric power to said discharge electrode;

two magnetic force line generating portions fashioned so as to enclose said plasma generation region, and fashioned so as to be spaced at a prescribed distance apart from each other in the direction of a center axis of said discharge electrode, said two magnetic force line generating portions generating magnetic force lines in said plasma generation region; and

two walls positioned so as to sandwich said plasma generation region between them, in the direction of the center axis of said discharge electrode, for defining the scope of said plasma generation region in the direction of the center axis.--

--23. A plasma generation apparatus according to claim 22, wherein

said two magnetic force line generating portions fashioned so as to generate magnetic force lines having portions roughly parallel to a center axis of said discharge electrode, such that the length of said parallel portions becomes longer the closer said magnetic force lines are to said center axis, said magnetic force lines being capable of trapping electrons at least in a center of said plasma generation region and being shaped so that they do not intersect said two walls in the center of said plasma generation region.--

--24. A plasma generation apparatus according to claim 22, wherein

one of said two magnetic force line generating portions is fashioned so as to output said magnetic force lines in said plasma generation region;

the other of said two magnetic force line generating portions is fashioned so as to be input said magnetic force lines been output in said plasma generation region by said one of said two magnetic force line generating portions.--

--25. A plasma generation apparatus according to claim 24, wherein

one of said two magnetic force line generating portions comprises a magnet, and is fashioned so that a N pole of said magnet faces said plasma generation region and a straight line connecting a N pole and a S pole of said magnet intersects said center axis of said discharge electrode about at a right angle; and

the other of said two magnetic force line generating portions comprises a magnet, and is fashioned so that a S pole of said magnet faces said plasma generation region and a straight line connecting a N pole and a S pole of said magnet intersects said center axis of said discharge electrode about at a right angle.--

--26. A plasma generation apparatus according to claim 22, wherein said two walls are electrode.--

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--27. A plasma generation apparatus according to claim 26, further comprising a second high-frequency electric power applicator that applies second high-frequency electric power to one of said two walls.--

--28. A plasma generation apparatus according to claim 27, wherein the other of said two walls is connected to a reference potential point.--

--29. A plasma generation apparatus according to claim 27, wherein the other of said two walls is established in an electrically floating state.--

--30. A plasma generation apparatus according to claim 28, wherein the other of said two walls, when said plasma is used in subjecting objects to be treated to prescribed treatments, is used as a holder for holding an object to be treated.--

--31. A plasma generation apparatus according to claim 27, wherein  
said first high-frequency electric power applicator comprises a first high-frequency electric power supply that outputs said first high-frequency electric power; and  
said second high-frequency electric power applicator comprises a second high-frequency electric power supply that outputs said second high-frequency electric power.--

--32. A plasma generation apparatus according to claim 27, wherein

said first high-frequency electric power applicator comprises a high-frequency power supply that outputs said first high-frequency electric power; and

said second high-frequency electric power applicator comprises a high-frequency resonant circuit that resonates with said first high-frequency electric power output from said high-frequency electric power supply and outputs this resonance output as said second high-frequency electric power.--

--33. A plasma generation apparatus according to claim 27, further comprising:

a controller that controls magnitudes of said first high-frequency electric power and said second high-frequency electric power.--

--34. A plasma generation apparatus according to claim 33, wherein

said controller is constructed so that, when controlling magnitudes of said first high-frequency electric power and said second high-frequency electric power, the ratio between them is a predetermined value.--

--35. A plasma generation apparatus according to claim 22, further comprising:

a position adjuster that adjusts positions of said two walls in said center axis of said discharge electrode.--

--36. A plasma generation apparatus according to claim 22, wherein

one of said two walls is used as a gas diffusion plate for diffusing said discharge gas in said plasma generation region; and

the other of said two walls, when said plasma is used in subjecting objects to be treated to prescribed treatments, is used as a holder for holding said objects to be treated.--

--37. A plasma generation apparatus, comprising:

a vacuum vessel having a plasma generation region established in the interior thereof;

a gas inductor that inducts discharge gas into said interior of said vacuum vessel;

an exhaust that exhausts the atmosphere in the interior of said vacuum vessel;  
a tube-shaped discharge electrode fashioned so as to enclose said plasma generation region;

a first high-frequency electric power applicator that applies first high-frequency electric power to said discharge electrode;

a magnetic force line generator fashioned so as to enclose said plasma generation region, that generates magnetic force lines having portions roughly parallel to a center axis of said discharge electrode, such that the length of said parallel portions becomes longer the closer said magnetic force lines are to said center axis, said magnetic force lines being capable of trapping electrons at least in a center of said plasma generation region; and

two walls positioned so as to sandwich said plasma generation region between them, in the direction of the center axis of said discharge electrode, for defining the scope of said plasma generation region in the direction of the center axis,

wherein said magnetic force line generator is fashioned so as to generate, as said magnetic force lines that pass through the center of said plasma generation region, magnetic force lens which are shaped so that they do not intersect said two walls.--

--38. A plasma generation according to claim 37, wherein

said magnetic force line generator comprises two magnetic force line generating portions fashioned so as to enclose said plasma generation region, and fashioned so as to be spaced at a prescribed distance apart from each other in the direction of a center axis of said discharge electrode, said two magnetic force line generating portions generating said magnetic force lines in said plasma generation region.--

--39. A plasma generation apparatus according to claim 38, wherein

one of said two magnetic force line generating portions is fashioned so as to output said magnetic force lines in said plasma generation region;